

REMARKS

Claims 1-21 are pending in this application. Claims 1-4 and 13-16 have been amended and new claim 22 has been added by the present Amendment. Amended claims 1-4 and 13-16 and new claim 22 do not introduce any new subject matter.

REJECTIONS UNDER 35 U.S.C. § 103(a)

Reconsideration is respectfully requested of the rejection of claims 1-5 and 13 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,452,779 ("Adler I") and further in view of Applicants' Admitted Prior Art (AAPA). Applicants respectfully submit that the amendments made to independent claims 1 and 13 render claims 1 and 13 and claims 2-5 dependent on claim 1, patentable over the cited references.

Applicants respectfully submit that neither Adler I nor AAPA expressly or inherently disclose an interconnection line within a first insulating layer, that also functions as a first electrode, as recited in amended claims 1 and 13. It is respectfully submitted that it would not have been obvious to modify Adler I in view of AAPA to develop same.

Adler I illustrates an electrode 104 positioned on top of an insulation layer 108 that functions as a lower electrode of a capacitor. In contrast, the first electrode claimed in claims 1 and 13 is within the insulating layer. See, e.g., Figs. 3-4 (reference numerals 53 and 55b). Indeed, Adler I teaches away from this configuration because the metal layer 106 in the insulation layer 108 does not function as the lower electrode.

Similarly, AAPA also teaches away from the claimed configuration. As shown in Figs. 1 and 2, neither of the interconnection lines 5a or 5b function as a lower electrode of a capacitor. Indeed, like Adler I, a separate bottom electrode 11a is

formed over the interconnection line 5a.

None of the cited references teach using the pre-existing interconnection line in the insulating layer as a bottom electrode. Indeed, the claimed configuration is more efficient by eliminating the step of adding a bottom electrode layer, as required by AAPA and Adler I.

Applicants also respectfully submit that, contrary to the Examiner's assertions, Adler I does not disclose the formation of the oxide layer as recited in claim 1. Adler I illustrates a "mandrel layer 101, formed of an insulator . . . to ensure proper formation of the two sidewall spacers layers." Col. 3, lines 43-46. Applicants respectfully submit that Adler does not teach or suggest that the mandrel layer is an oxide layer.

Accordingly, Applicants respectfully submit that amended claims 1 and 13 are patentable over Adler I and AAPA, when taken alone or in combination. For at least the reason that claims 2-5, depend from claim 1, claims 2-5 are also submitted to be patentably distinct over the cited references.

Applicants also respectfully submit that, contrary to the Examiner's assertions, Adler I does not disclose a dielectric layer formed of one of a silicon nitride layer, a silicon carbide layer, a silicon oxycarbide layer and a silicon carbonitride layer, as recited in claim 5. Indeed, there is no disclosure in Adler I related to the material of dielectric layer 103.

As such, Applicants request that the Examiner withdraw the rejection of claims 1-5 and 13 under 35 U.S.C. §103(a).

Reconsideration is respectfully requested of the rejection of claims 6, 8, 10-12,

14, 15, 17, 20 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Adler I and AAPA as applied to claims 1-5 and 13 and further in view of U.S. Patent No. 6,259,128 ("Adler II").

Applicants respectfully submit that the amendments made to independent claims 1 and 13 render those claims, claims 6-8 and 10-12 (dependent on 1), and claims 14, 15, 17, 20 and 21 (dependent on 13) patentable over the cited references.

As stated above, Applicants respectfully submit that Adler I and AAPA, when taken alone or in combination do not disclose or suggest, an interconnection line within a first insulating layer, that also functions as a first electrode, as recited in amended claims 1 and 13.

Applicants submit that the addition of Adler II does not render obvious the configuration recited in claims 1 and 13. Adler II, like AAPA and Adler I, teaches away from the claimed configuration by disclosing the formation of a separate bottom electrode and not using the pre-existing interconnection line in the insulating layer as a bottom electrode. Therefore, Applicants respectfully submit that Adler II, when taken alone or in combination with Adler I and AAPA, does not expressly or inherently disclose the interconnection line within a first insulating layer, that also functions as a first electrode, as recited in amended claims 1 and 13.

Applicants respectfully submit claims 1 and 13 are patentable over Adler I and AAPA as applied to claims 1-5 and 13 and further in view of Adler II. For at least the reason that claims 6-8 and 10-12 depend from claim 1, and claims 14, 15, 17, 20 and 21 depend from claim 13, claims 6-8, 10-12, 14, 15, 17, 20 and 21 are also submitted to be patentably distinct over the cited references.

Further, Applicants respectfully submit that, contrary to the Examiner's assertions, Adler II does not disclose an electrode layer formed of tantalum, tantalum nitride layer, titanium or titanium nitride, as recited in claims 6 and 17. Adler II states that barrier layers may be formed of tantalum nitride or titanium nitride, but does not disclose an electrode layer formed from these materials.

As such, Applicants request that the Examiner withdraw the rejection of claims 6-8, 10-12, 14, 15, 17, 20 and 21 under 35 U.S.C. §103(a).

Reconsideration is respectfully requested of the rejection of claims 7, 10, 18, and 19 under 35 U.S.C. § 103(a) as being unpatentable over Adler I and AAPA as applied to claims 1-5 and 13 and further in view of U.S. Patent No. 4,4,497,107 ("Cogan"). Applicants respectfully submit that the amendments made to independent claims 1 and 13 render those claims, claims 7 and 10 (dependent on 1), and claims 18 and 19 (dependent on 13) patentable over the cited references.

As stated above, Applicants respectfully submit that Adler I and AAPA, when taken alone or in combination do not disclose or suggest, an interconnection line within a first insulating layer, that also functions as a first electrode, as recited in amended claims 1 and 13.

Applicants submit that the addition of Cogan does not render obvious the configuration of claims 1 and 13. Indeed, Cogan relates to a gate-source structure for a transistor and does not relate to capacitors or methods of forming same. Therefore, Applicants respectfully submit that Cogan, when taken alone or in combination with Adler I and AAPA, does not expressly or inherently disclose the interconnection line within a first insulating layer, that also functions as a first electrode, as recited in

amended claims 1 and 13.

Applicants respectfully submit claims 1 and 13 are patentable over Adler I and AAPA as applied to claims 1-5 and 13 and further in view of Cogan. For at least the reason that claims 7 and 10 depend from claim 1, and claims 18 and 19 depend from claim 13, claims 7, 10, 18 and 19 are also submitted to be patentably distinct over the cited references.

Further, as stated above, Applicants also respectfully submit that, contrary to the Examiner's assertions, Adler I does not disclose the formation of the oxide layer as recited in claim 19.

As such, Applicants request that the Examiner withdraw the rejection of claims 7, 10, 18 and 19 under 35 U.S.C. §103(a).

CLAIM 16

Applicants note that the Examiner did not specifically address claim 16. However, Applicants respectfully submit that claim 16 is patentable over the cited references for at least the reason that claim 16 depends from claim 13, which is submitted to be patentable over the cited references. Further, Applicants respectfully submit that claim 16 is patentable over the cited references for at least the reason that none of the cited references disclose a dielectric layer formed of one of a silicon nitride layer, a silicon carbide layer, a silicon oxycarbide layer and a silicon carbonitride layer.

NEW CLAIM 22

Applicants respectfully submit new claim 22 for consideration and that new claim 22 is patentable over the cited references.

An early and favorable reconsideration is earnestly solicited. If the Examiner has any further questions or comments, it is suggested that the Examiner telephone Applicants' Attorney to reach a prompt disposition of this application.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Michael F. Morano", is written over a horizontal line.

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